adding select pre-computed values from said product look-up table to produce a result; and

determining said branch metric using said result.

4. (Twice Amended) In a receiver, a filter in a nonlinear maximum-likelihood-sequence-estimation equalizer, which demodulates at least one received radio signal modulated with M-ary modulation, for producing a hypothesized received signal sample to be used for determining a branch metric, said filter comprising:

a memory for storing a product look-up table having pre-computed values equal to a product of a channel tap estimate and a hypothesized symbol value for different iterations; and

an adder for adding select entries from the product look-up table to produce a hypothesized received sample signal.

5. (Amended) In a receiver, a filter in a nonlinear maximum likelihood-sequence-estimation (MLSE) equalizer for M-ary modulation, said filter comprising:

means for pre-computing a plurality of possible values to be used in determining a branch metric;

a memory for storing said plurality of pre-computed possible values; and

means for combining select pre-computed values from said memory.

9.　(Amended) In a receiver, a method for computing a branch metric in a nonlinear maximum likelihood-sequence-estimation (MLSE) equalizer which demodulates M-ary modulated signals, said method comprising the steps of:

pre-computing a plurality of possible values to be used in the branch metric computation;

storing said plurality of pre-computed possible values in a memory;

adding select pre-computed values from said memory; and

computing said branch metric using said added select pre-computed values.

13. (Twice Amended) In a receiver, a method for computing a branch metric in a multi-channel nonlinear maximum likelihood-sequence-estimation (MLSE) equalizer which demodulates M-ary modulated signals, said method comprising the steps of:

pre-computing a plurality of possible values for each channel in said multi-channel MLSE to be used in the branch metric computation;

storing said plurality of possible values for each channel in separate product look-up tables; adding select values from said separate product look-up tables; and

computing said branch metric using said added select values.

REMARKS

Claims 1, 4, 5, 9 and 13 have been amended to further clarify the fact that the invention is based in an RF receiver and that the MLSE is applied to the